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DISPLAYING PERFORMANCE LIMITATIONS IN AIRCRAFT DISPLAY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Patent Application No. 62/343,260 filed on May 31, 2016, the contents of which are hereby incorporated by reference.

TECHNICAL FIELD

[0002] The present invention relates generally to aircraft displays, and more particularly to a pilot support system for addressing non-normal events.

BACKGROUND OF THE ART

[0003] Aircraft pilots have many tasks to perform. The workload varies throughout a flight, from low to high, even during a routine flight. When a non-normal event arises, such as adverse weather conditions or aircraft malfunctions, pilots have a particularly high workload as they need to multi-task effectively.

[0004] Various tools exist to help pilots manage tasks throughout a flight. For example, checklists are sometimes generated and displayed to the pilot. Cross-checking and read-back procedures are also put in place to help pilots eliminate errors.

[0005] Despite these tools, there is room for improvement to assist pilots and further mitigate potential problems.

SUMMARY

[0006] The present disclosure describes displaying on a flight deck graphical presentations indicative of performance limitations of an aircraft resulting from an in-flight aircraft reconfiguration. The graphical presentations are co-located on the flight deck with the graphical presentations of the aircraft and/or system parameters to which the performance limitations apply.

[0007] In accordance with a first aspect, there is provided a method comprising acquiring reconfiguration information of an aircraft upon detection of a non-normal event in-flight, the reconfiguration information comprising at least one performance limitation of at least one aircraft or system parameter as a result of the non-normal event; and displaying a graphical indicator of the at least one performance limitation co-located with a display of the at least one aircraft or system parameter.

[0008] In some embodiments, the graphical indicator corresponds to a prescription of a checklist generated as a result of the non-normal event.

[0009] In some embodiments, displaying the graphical indicator of the at least one performance limitation comprises overlaying the indicator on the display of the at least one aircraft or system parameter.

[0010] In some embodiments, the method further comprises dynamically adapting display of the graphical indicator of the at least one performance limitation as a function of at least one context-specific condition.

[0011] In some embodiments, the method further comprises updating display of the graphical indicator of the at least one performance limitation when the at least one context-specific condition changes.

[0012] In some embodiments, the context-specific condition is a flight phase in which the aircraft is currently operating.

[0013] In some embodiments, displaying the graphical indicator comprises selecting a symbol for the graphical indicator as a function of at least one of the at least one performance limitation and the at least one aircraft or system parameter.

[0014] In some embodiments, displaying the graphical indicator of the least one performance limitation comprises displaying an available range of the at least one aircraft or system parameter in relation to a current value of the at least one aircraft or system parameter.

[0015] In some embodiments, the method further comprises receiving a request to display the at least one performance limitation parameter.

[0016] In some embodiments, the request is formulated within a checklist generated as a result of the non-normal event.

[0017] In accordance with a further aspect, there is provided a system comprising a processing unit and a memory communicatively coupled to the processing unit and comprising computer-readable program instructions. The instructions are executable by the processing unit for acquiring reconfiguration information of an aircraft upon detection of a non-normal event in-flight, the reconfiguration information comprising at least one performance limitation of at least one aircraft or system parameter as a result of the non-normal event; and displaying a graphical indicator of the at least one performance limitation co-located with a display of the at least one aircraft or system parameter.

[0018] In some embodiments, the graphical indicator corresponds to a prescription of a checklist generated as a result of the non-normal event.

[0019] In some embodiments, displaying the graphical indicator of the at least one performance limitation comprises overlaying the graphical indicator on the display of the at least one aircraft or system parameter.

[0020] In some embodiments, the computer-readable program instructions are further executable for dynamically adapting display of the graphical indicator of the at least one performance limitation as a function of at least one context-specific condition.

[0021] In some embodiments, the computer-readable program instructions are further executable for updating the graphical indicator of the at least one performance limitation when the at least one context-specific condition changes.

[0022] In some embodiments, the context-specific condition is a flight phase in which the aircraft is currently operating.

[0023] In some embodiments, displaying the graphical indicator comprises selecting a symbol for the indicator as a function of at least one of the at least performance limitation and the at least one aircraft or system parameter.

[0024] In some embodiments, displaying the graphical indicator of the least one performance limitation comprises displaying an available range of the at least one aircraft or system parameter in relation to a current value of the at least one aircraft or system parameter.

[0025] In some embodiments, the computer-readable program instructions are further executable for receiving a request to display the at least one performance limitation parameter.